THE TRANSFORMATIVE POTENTIAL OF ARTIFICIAL GENERAL INTELLIGENCE IN SHAPING GENERAL LEGAL THOUGHT

Genel Yapay Zekânın Genel Hukuk Düşüncesi Üzerindeki Dönüştürücü Etkisi

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Abstract

This study examines the transformative role of Artificial Intelligence (AI) and Artificial General Intelligence (AGI) in the reconsideration of general legal thought. The research analyzes three foundational approaches in legal theory—Natural Law, Positive Law, and the increasingly discussed Integrative Law—within a conceptual framework informed by developments in artificial intelligence. Natural law is considered for its provision of normative criteria grounded in universal moral principles; positive law for its supply of structured legal data suitable for algorithmic analysis; and integrative law for its contribution of a human-centered, interdisciplinary, and holistic perspective to legal reasoning. The central claim of the study is that the structural and conceptual difficulties that have historically hindered the formation of a general theory of law—arising from differences among legal systems, languages, and jurisdictions—may be re-examined through the analytical capacities offered by advanced AI technologies. In this context, it is argued that artificial intelligence, through its capabilities in pattern

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recognition, data synthesis, and natural language processing, can contribute to the comparative analysis of legal concepts across different legal systems and to their harmonization to a certain extent. Methodologically, the study employs a systematic literature review in conjunction with theoretical synthesis and evaluates the potential contributions of artificial intelligence to the identification of normative principles and the analytical modeling of legal reasoning. At the same time, the study critically addresses the technological limitations, ethical concerns, and structural risks associated with AI applications—particularly the opacity of algorithmic decision-making processes—and emphasizes the necessity of legal frameworks grounded in transparency, accountability, and human oversight. In conclusion, the study demonstrates that addressing the relationship between legal theory and artificial intelligence through an interdisciplinary approach can contribute to a reconsideration of the methodological foundations of general legal thought. Artificial intelligence was utilized in this study for literature review, language and consistency analysis, and topic summarization, and the inductive method (istiqrāʾ) was employed throughout the research.

Keywords: General legal thought, Artificial general intelligence (AGI), Artificial intelligence, Natural law, Positive law, Integrative law

Öz

Bu çalışma, Yapay Zekâ (YZ) ve Genel Yapay Zekâ'nın (AGI), genel hukuk düşüncesinin yeniden ele alınmasındaki dönüştürücü rolünü incelemeyi amaçlamaktadır. Araştırmada, hukuk teorisinin üç temel yaklaşımı olan Doğal Hukuk, Pozitif Hukuk ve çağdaş literatürde giderek artan biçimde tartışılan Bütünleştirici (Integrative) Hukuk, yapay zekâ perspektifinden ele alınarak kavramsal bir çerçeve içerisinde analiz edilmektedir. Doğal hukuk, evrensel ahlaki ilkelere dayalı normatif ölçütler

sunması bakımından; pozitif hukuk, algoritmik analiz için elverişli yapılandırılmış hukuki veriler sağlaması yönüyle; bütünleştirici hukuk yaklaşımı ise hukuki akıl yürütmeye insani, disiplinlerarası ve kuşatıcı bir perspektif kazandırması sebebiyle çalışma kapsamında değerlendirilmiştir. Çalışmanın temel savı, farklı hukuk sistemleri, diller ve yargı alanları arasındaki yapısal ve kavramsal farklılıklardan kaynaklanan ve tarihsel olarak genel bir hukuk teorisinin oluşturulmasını güçleştiren sorunların, gelişmiş yapay zekâ teknolojilerinin sunduğu imkânlar aracılığıyla yeniden ele alınabileceğidir. Bu bağlamda, yapay zekânın örüntü tanıma, veri sentezi ve doğal dil işleme alanlarındaki kapasitesinin, farklı hukuk düzenlerine ait kavramların karşılaştırmalı olarak analiz edilmesine ve belirli ölçüde uyumlaştırılmasına katkı sağlayabileceği ileri sürülmektedir. Araştırmada yöntem olarak sistematik literatür taraması ile teorik sentez birlikte kullanılmış; yapay zekânın normatif ilkelerin tespitine ve hukuki akıl yürütmenin analitik düzeyde modellenmesine sağlayabileceği katkılar değerlendirilmiştir. Bununla birlikte çalışmada, yapay zekâ uygulamalarının teknolojik sınırlılıkları, etik sorunları ve algoritmik karar alma süreçlerinin kapalılığı gibi yapısal riskler eleştirel biçimde tartışılmakta; bu risklerin giderilebilmesi için şeffaflık, hesap verebilirlik ve insan denetimini esas alan hukuki düzenlemelerin gerekliliği vurgulanmaktadır. Sonuç olarak çalışma, hukuk teorisi ile yapay zekâ teknolojileri arasındaki ilişkinin disiplinlerarası bir yaklaşımla ele alınmasının, genel hukuk düşüncesinin metodolojik temellerinin yeniden değerlendirilmesine katkı sağlayabileceğini ortaya koymaktadır. Bu çalışmada literatür taraması, dil ve tutarlılık incelemesi ve konu özetlerinde yapay zekadan yararlanılmış ve araştırmanın genelinde istikra metodu kullanılmıştır.

Anahtar Kelimeler: Genel hukuk düşüncesi, Genel yapay zekâ, Yapay zekâ, Doğal hukuk, Pozitif hukuk, Bütünleştirici hukuk/Entegratif hukuk

INTRODUCTION

Rapid advances in artificial intelligence are reshaping fundamental structures across multiple domains, and their implications are becoming increasingly salient within legal theory. The unprecedented scale, speed, and autonomy of contemporary AI systems have given rise to the concept of Transformative Artificial Intelligence (TAI), which captures not merely incremental technological change but the potential reconfiguration of social and normative orders.[1] This conceptual framework informs the title of the present study. Against this background, the article investigates how the transformative capacities attributed to TAI may challenge and reshape general legal thought, including core assumptions concerning normativity, agency, and institutional authority.

The plurality of legal schools and practices, the diversity of legal languages, and the differentiation of law into distinct branches all complicate the project of theorizing law. In its narrow sense, legal theory is concerned with explaining the nature of law—namely, identifying its defining features and providing an account of what makes law the kind of normative system that it is. For a legal theory to be successful, it must offer coherent propositions and accurate explanations that capture these essential characteristics. Competing legal theories may therefore be assessed in terms of their explanatory adequacy and internal coherence, rather than their mere existence. Beyond the question of whether law can be theorized at all lies a more demanding and controversial issue: whether a general legal theory—one that holds true for law across all times and places—is possible. This debate arises from the conceptual nature of law itself. Legal theory necessarily operates through concepts, and concepts are embedded in linguistic, cultural, and historical

[1] Ross Gruetzemacher and Jess Whittlestone, "The Transformative Potential of Artificial Intelligence," *Futures* 135 (January 2022): 1–5, https://doi.org/10.1016/j.futures.2021.102884.

contexts. As a result, the dependence of law on culturally situated concepts raises doubts about the universality of any general theory of law, while simultaneously motivating continued efforts to articulate one.[2]

The essential features of law are those characteristics that ground its claim to universality. Acknowledging such features does not entail denying the existence of social institutions or normative orders that resemble law in significant respects yet fall short of its defining criteria. Across different societies and historical periods, various forms of social organization have exhibited legal-like attributes without fully constituting law as such. Nevertheless, normative orders that lack the essential features of law cannot properly be classified as legal systems. Although the concrete forms through which law is expressed may vary according to historical and cultural contexts, the nature of law itself is not contingent in this way, insofar as its essential features remain constant across contexts.[3] While Legal Realism and Critical Legal Studies emphasize that law is contingent upon culture, history, and politics, there remains a consensus that certain foundational elements define all legal systems. Specifically, the structure of rules backed by authority and enforced by institutions appears consistent across diverse societies. In this context, Ronald Dworkin challenged the strictures of legal positivism by advancing the theory of interpretivism. He argued that law is not merely a collection of rules, but is grounded in intrinsic moral principles—such as fairness and justice—that guide judicial reasoning.[4] Prior to Ronald Dworkin, legal theory was dominated by H.L.A. Hart's Legal Positivism, which conceptualized law as a matter of social

[2] Joseph Raz, "Can There Be a Theory of Law?," *Philosophy of Law and Legal Theory*, 2005, 1, 2.

[3] Raz, "Can There Be a Theory of Law?," 8.

[4] Editorial, *Insights from Contemporary Legal Theorists on Modern Law - Laws Learned*, Legal Theorists, July 23, 2024, https://lawslearned.com/contemporary-legal-theorists/.

fact distinct from morality, thereby permitting judicial discretion in 'hard cases' characterized by indeterminate rules. Dworkin challenged this paradigm by asserting that adjudication is not an exercise in arbitrary law-making, but rather an interpretive process governed by implicit principles embedded within the legal system. To illustrate this, he introduced the 'chain novel' metaphor, positing that judges—much like co-authors—must ensure their decisions achieve both consistency with prior precedents ('fit') and moral coherence ('justification'). Central to his theory of 'Law as Integrity,' Dworkin argued that the law must speak with a unified moral voice grounded in justice and fairness. This culminates in his controversial 'one right answer' thesis, which suggests that even in complex disputes, a single correct outcome exists. This outcome is discoverable by an ideal jurist, metaphorically named 'Hercules,' through an exhaustive synthesis of rules and equitable maxims—such as 'no man shall profit from his own wrong'—that pre-exist within the legal fabric.[5] Divorcing laws from their underlying principles renders them logically inconsistent and unchecked, thereby contradicting the fundamental purpose of law: the prevention of arbitrariness. Furthermore, as Joseph Raz posits, a legal system cannot substantively exist if it fails to integrate these general principles and tenets into its lawmaking processes. Consequently, it is incumbent upon legal interpreters and practitioners to comprehend the normative foundations upon which laws are established. General legal theory can only be substantiated through such an understanding. To deny this general nature is to strip law of its epistemological autonomy, reducing it to a mere sub-discipline dependent on political or social sciences. In such a scenario, law forfeits its status as a distinct science and becomes merely an academic subject matter.

[5] Ronald M. Dworkin, "The Model of Rules," *The University of Chicago Law Review* 35, no. 1 (1967): 40; Marshall Cohen, *Ronald Dworkin and Contemporary Jurisprudence* (Rowman & Allanheld Totowa, NJ, 1984), 8–11.

Algorithmic decision-making is typically grounded in rule-based structures and, in certain domains, informed by guiding principles such as consistency or fairness. In data-driven models, however, these principles often remain implicit rather than explicitly formulated or normatively encoded. As a result, the justificatory basis of algorithmic outcomes may be opaque, even when the outputs exhibit patterns that resemble principled reasoning.

In this context, artificial intelligence emerges not merely as an object of legal regulation or philosophical analysis, but as a methodological participant in general legal theory. Its capacity to structure, classify, and operationalize normative patterns reshapes the conditions under which legal reasoning is articulated and evaluated. The interaction between artificial intelligence and legal philosophy therefore holds the potential to generate new philosophical ground—not only with respect to law, but also concerning the nature of knowledge, the ethics of decision-making, and the formation and stabilization of social norms.

A fundamental challenge within the discipline is the absence of a generally accepted definition for general legal theory. Terminological precision can only be achieved by delineating the essential characteristics of the object of study. Based on these attributes, legal theory functions as a generalizing branch of science with law as its subject. While alternative nomenclatures such as 'foundations,' 'principles,' or 'knowledge' are occasionally employed, the most accurate terminology is 'general theory of law'. However, it is pertinent to note that within Anglophone scholarship, a conceptual distinction persists between 'general theory of law' and 'general legal theory. Addressing these methodological challenges, this study examines the potential of Artificial Intelligence to construct a unified general legal thought by synthesizing natural, positive, and integrative law approaches. Within this framework, Natural Law refers to a body of universal moral principles and normative

rules inherent in human nature, discoverable through rational inquiry. Unlike positive law, which is enacted by human authorities, natural law is posited to pre-exist formal legal systems, serving as an objective benchmark for evaluating their legitimacy.[6] From the perspective of natural law theory, the fundamental purpose of legal institutions and judicial processes is to ensure that human-made laws correspond as closely as possible to objective moral truths. On this view, the legitimacy of law depends not merely on formal enactment, but on its substantive conformity with universal normative standards. In contrast, the integrative law movement adopts an explicitly comprehensive and human-centered approach to law and legal practice. It emphasizes interdisciplinary integration, restorative orientations, and, in many contexts, therapeutic considerations, thereby conceiving law not only as a system of norms but also as a relational and process-oriented practice aimed at promoting holistic justice.[7] Owing to these characteristics, integrative law is more appropriately understood as a methodology rather than as a theory. Its practical, relational, and process-driven orientation positions it as a guide for ethical and effective legal practice, rather than as a purely abstract explanatory framework. Consequently, translating integrative law into artificial intelligence systems presents particular challenges, given the contextual sensitivity, variability, and relational dimensions that characterize this approach and resist straightforward algorithmic formalization.

Artificial Intelligence (AI) is widely regarded as a transformative technological development with the capacity to significantly influence social structures, modes of decision-making, and institutional practices. Contemporary analyses anticipate a rapid expansion of the Internet of Things (IoT), with

[6] Legal Information Institute, "Natural Law,", accessed August 29, 2025, https://www.law.cornell.edu/wex/natural_law.

[7] Susan Daicoff, "Law as a Healing Profession: The Comprehensive Law Movement," *Pepp. Disp. Resol. LJ* 6 (2006): 1.

the number of connected devices projected to reach several tens of billions in the near term and to continue increasing substantially in the coming decades.[8]

This study aims to examine the impact of artificial intelligence on general legal thought. Its central thesis is that artificial intelligence can contribute to the construction of a general legal framework by enabling a synthesis of natural law, positive law, and integrative law approaches. Legal discourse has traditionally been shaped by three interrelated dimensions: theoretical reflection rooted in human rationality, the codified norms embodied in positive legal systems, and uncodified ethical principles that inform legal evaluation and interpretation. Although these approaches are often treated as distinct or even competing, they in fact operate within a dynamic and interdependent cycle. It is this interaction that constitutes the conceptual foundation of general legal thought.

Artificial intelligence functions through structured data sets and algorithmic processes designed to analyze, classify, and evaluate information. In the legal domain, data sets primarily represent codified law, corresponding to the sphere of positive law. At the same time, the algorithms that process these data sets rely on underlying rules, patterns, and evaluative criteria that exhibit a methodological affinity with the principles emphasized in natural law theory. In this respect, artificial intelligence provides a novel methodological framework for examining the relationship between codified legal norms and foundational normative principles.

It has also been widely observed that the growing integration of artificial intelligence into legal systems will

[8] *Number of Connected IoT Devices Growing 14% to 21.1 Billion*, n.d., accessed January 1, 2026, https://iot-analytics.com/number-connected-iot-devices/; Aleksei Kosykh, "Intellectual Nature of Law in the Basic Concepts of Understanding Law," *Penitentiary Science*, December 17, 2021, 835, https://doi.org/10.46741/2686-9764-2021-15-4-835-843.

increase the demand for professionals capable of interpreting and synthesizing concepts drawn from both law and artificial intelligence.[9] Addressing this need requires the development of appropriate educational and theoretical frameworks. One of the primary aims of this study is to contribute to this emerging field by offering a conceptual foundation through which artificial intelligence and general legal theory may be systematically understood and integrated.

Developments in artificial intelligence have introduced a new dimension to longstanding debates within legal theory. Legal consciousness and legal practice, like all social institutions, are shaped—both positively and negatively—by the broader processes of transformation that characterize human history. It is therefore unsurprising that the study of law has given rise to a plurality of methodological and theoretical approaches. Within legal scholarship, these approaches are commonly grouped into two broad categories. The first concentrates on specific branches of law—such as constitutional law, administrative law, criminal law, civil law, and commercial law—and is typically referred to as legal dogmatics. This approach is primarily concerned with the systematic exposition, interpretation, and application of legal rules, emphasizing their technical and doctrinal dimensions within a given legal system. The second approach is general legal thought, which shifts attention away from the substantive content of particular legal fields toward the normative and formal structure of law as such. Rather than addressing law in its sectoral manifestations, this approach seeks explanations at a general, abstract, and potentially universal level, aiming to account for the fundamental features common to all legal systems.[10]

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[9] Tülay Turan et al., "Hukuk'ta Yapay Zeka: Çalışmalar ve Gelecek Öngörüleri," *Mehmet Akif Ersoy Üniversitesi Fen Bilimleri Enstitüsü Dergisi* 11, no. 2 (2020): 246, 254, https://doi.org/10.29048/makufebed.748843.

[10] Kemal Gözler, *Hukukun Genel Teorisine Giriş: Hukuk Normlarının Geçerliliği ve Yorumu Sorunu* (Kemal Gözler, 1998), 14:2, 3.

To formulate abstract explanations at a universal level, legal theory necessitates a foundation of generally accepted rules and shared conceptual frameworks. However, the inherent heterogeneity of global legal systems poses a significant epistemological obstacle to this theoretical unification. This study posits that the advanced data processing capabilities of Artificial Intelligence offer a novel pathway to surmount this fragmentation, enabling the identification of trans-jurisdictional patterns.

While 'General Legal Thought' serves as a fundamental pillar of legal education and science, it suffers from terminological inconsistency and has historically received insufficient scholarly attention relative to its importance. Despite its foundational role, the discipline remains under-theorized within the broader system of law—a deficit this research aims to address through the lens of emerging technologies[11]. However, beyond the effects of globalization, rapid developments in the field of artificial intelligence have further intensified both the relevance of and the demand for general legal thought. While the implications of globalization for general legal theory have been the subject of sustained scholarly attention—particularly with respect to legal pluralism, transnational norms, and comparative law—the transformative impact of artificial intelligence on the conceptual foundations of general legal thought remains comparatively underexplored.[12] The same cannot yet be said of the relationship between artificial intelligence and legal theory in general. Artificial intelligence possesses the potential to mark a significant turning point in the history of science and humanity, and this potential has already begun to manifest itself within the legal domain. Contemporary debates on the relationship

[11] Mehmet Damirli, *Genel Hukuk Teorisi (Türkiye'de Tarihi Gelişimi ve Çağdaş Durumu)* (Adalet Yayınevi, 2024), 21.

[12] William Twining, *General Jurisprudence: Understanding Law from a Global Perspective*, 1st ed. (Cambridge University Press, 2009), https://doi.org/10.1017/CBO9780511807374.

between artificial intelligence and law reveal both promising opportunities and serious challenges, reflecting the ambivalent character of this technological development.

Against this background, the present study aims to examine the relationship between artificial intelligence and general legal thought, with particular attention to the ways in which artificial intelligence may influence fundamental legal concepts. By assessing both the positive and negative implications of AI for the conceptual foundations of law, the study seeks to contribute to a more systematic understanding of artificial intelligence's role within general legal theory.

The question of whether it is possible to speak of a *general law* has long been a subject of debate within jurisprudence. Scholars engaged in legal theory have approached this issue primarily through an inquiry into the nature of law itself, examining whether law possesses essential characteristics that transcend particular legal systems, historical contexts, and cultural settings.[13] Although general legal thought is closely related to the philosophy of law, the relationship between these two fields is not merely overlapping but analytically complementary. Accordingly, this study also examines the interaction between general legal thought and the philosophy of law, situating their respective roles within the broader framework of legal theory.

General legal theory proceeds from existing legal systems and focuses on the sources, principles, and structural features of law. It examines fundamental legal concepts, classifications, and functions, aiming to identify the general characteristics that underlie diverse legal orders. In doing so, it occupies an intermediate position between doctrinal analysis and philosophical inquiry, contributing to a systematic understanding of law as a normative and institutional

[13] Raz, "Can There Be a Theory of Law?," 324.

phenomenon.[14] The philosophy of law, by contrast, examines the nature, purpose, sources, and values of law, as well as its place within broader normative and philosophical systems, employing specifically philosophical methods of inquiry. In concise terms, while general legal thought is concerned with the institutional and conceptual embodiment of law within legal systems, the philosophy of law addresses the abstract and foundational dimensions of law as a normative phenomenon. Because the concepts of law and the state are inextricably linked, a close and necessary relationship also arises between the general theory of the state and general legal thought. Legal norms are not only normative structures but are also embedded within political authority and institutional frameworks. [15] Accordingly, any comprehensive account of general legal thought must engage, at least implicitly, with questions concerning the nature, functions, and legitimacy of the state.

Algorithms operate on structured data, predictable patterns, and quantifiable inputs, reflecting a methodological affinity with scientific reasoning, which relies on systematic conceptualization and rule-governed relations among concepts. The term algorithm, derived from the name of Muhammad ibn Musa al-Khwarizmi, denotes a finite and well-defined sequence of instructions designed to solve a problem or perform a specific computational task. This formal and procedural character makes algorithms particularly effective in domains amenable to structured reasoning, while simultaneously revealing the limits of their application in normatively complex fields such as law.[16] Artificial intelligence (AI) has been defined in various ways, but

[14] Gözler, *Hukukun Genel Teorisine Giriş: Hukuk Normlarının Geçerliliği ve Yorumu Sorunu*, 14:2, 3.

[15] Rona Aybay, *Genel Kamu Hukuku Devlet)18.- 20. Yüzyıl*, 1st ed. (İstanbul Bilgi Üniversitesi Yayınları, 2017), 9.

[16] Haroon Sheikh et al., "Artificial Intelligence: Definition and Background," in *Mission AI*, by Haroon Sheikh et al., Research for Policy (Springer International Publishing, 2023), 15, https://doi.org/10.1007/978-3-031-21448-6_2.

it is generally understood as a technological system capable of performing tasks by imitating aspects of human intelligence and improving its performance through learning. Core subfields such as machine learning and deep learning enable AI systems to analyze data, recognize patterns, and refine outcomes, often through complex algorithmic structures such as artificial neural networks. At its foundation, AI operates through algorithms—finite, well-defined sequences of operations designed to solve specific problems or achieve determinate objectives.

Although AI represents a relatively recent technological development, its philosophical foundations can be traced to classical sources concerning reasoning, logic, and systematic knowledge. Similarly, while debates within general legal thought originate in ancient legal and philosophical traditions, they retain contemporary relevance, particularly in light of algorithmic forms of reasoning. For this reason, both classical and modern sources are incorporated into this study.

This research adopts an interdisciplinary approach that synthesizes developments in artificial intelligence and legal theory. It is based on a systematic review of theses, books, and peer-reviewed literature addressing general legal concepts, fundamental principles of law, and AI. AI-based tools supported the research process through literature discovery, analytical comparison, and textual refinement. The study addresses a notable gap in legal scholarship by examining the interaction between AI—particularly emerging discussions on artificial general intelligence (AGI)—and general legal thought.

The research is structured around two interconnected problem areas. The first concerns general legal thought and its methodological challenges, including legal pluralism, conceptual fragmentation, the absence of a shared legal language, and difficulties in identifying common institutional and normative structures across legal systems. These challenges have contributed to the perception that law lacks systematic coherence, thereby weakening its claim to scientific status. The

second problem area relates to artificial intelligence, especially AGI, whose rapid development raises novel and largely unexplored questions for legal theory. By addressing both dimensions, this study aims to contribute to a more coherent understanding of law as a systematic discipline in the context of emerging intelligent technologies.

This study aims to examine the current and potential effects of developments in artificial intelligence on fundamental legal concepts by analyzing their ontological status and systematic coherence. In doing so, the study also engages, albeit indirectly, with the longstanding jurisprudential question of whether law can be regarded as a science.[17]

The significance of this study rests on two primary objectives. First, it seeks to foreground general legal thought as an autonomous subject of academic inquiry by examining its role within legal theory, the conceptual and methodological problems it encounters, and the extent to which these problems may be addressed with the analytical support of artificial intelligence. In this respect, the study contributes to a systematic reassessment of general legal thought and its contemporary relevance.

Second, the study aims to make visible the growing impact of artificial intelligence on general legal thought itself. As artificial intelligence increasingly influences legal institutions, decision-making processes, and normative frameworks, understanding its implications at the level of general legal theory becomes indispensable. By examining the relationship between artificial intelligence and general legal thought, the study also evaluates how the development of a general theory applicable

[17] MC Roos, "Is Law Science?," *Potchefstroom Electronic Law Journal (PELJ)* 17 (2014): 1392–439; Ali Nazım Sözer, "Bilim ve Hukuk," *Marmara Üniversitesi Hukuk Fakültesi Hukuk Araştırmaları Dergisi* 20, no. 1 (2014): 1081–118, https://doi.org/10.33433/maruhad.607133.

across legal systems may shape future legal and theoretical developments.

The growing emphasis in contemporary scholarship on both advanced artificial intelligence research and renewed inquiry into legal theory underscores the relevance of this study. Given that artificial intelligence constitutes one of the most influential technological developments of our time, and that many states have begun to enact legal regulations governing its use, a theoretically grounded analysis of its implications for general legal thought is both timely and necessary.[18] After the positive results of this arrangement are seen, other countries will naturally have to join this process. One of the importance of our study will be to contribute to the understanding of this development process.

I. THE POSSIBILITIES AND CONSTRAINTS OF AI WITHIN GENERAL LEGAL THOUGHT

While artificial intelligence has introduced significant innovations and new opportunities in the legal domain, its limitations[19] have become an equally central subject of scholarly debate.[20] These limitations may be analytically divided into two broad categories: internal and external. Internal limitations refer to the physical, computational, and logical constraints inherent to the technology itself and exist independently of legal or regulatory frameworks. They include the substantial computational and energy demands of advanced models, which depend on energy-intensive computation and specialized

[18] Gökhan Erdoğan, "Yapay Zekâ ve Hukukuna Genel Bir Bakış," *Adalet Dergisi*, no. 66 (May 2021): 89.

[19] "NexLaw Blog | AI in Legal: Evidence Management for Arbitration," NexLaw | Your AI Legal Assistant, accessed August 27, 2025, https://www.nexlaw.ai/blog/ai-evidence-management-litigation/.

[20] Sajid Ali et al., "Explainable Artificial Intelligence (XAI): What We Know and What Is Left to Attain Trustworthy Artificial Intelligence," *Information Fusion* 99 (November 2023): 2, https://doi.org/10.1016/j.inffus.2023.101805.

hardware, thereby rendering technological progress vulnerable to bottlenecks in semiconductor manufacturing and energy infrastructure. [21]

Internal constraints also encompass data scarcity, insofar as contemporary large language models increasingly approach the limits of available high-quality human-generated textual data, giving rise to a fundamental software constraint rather than a merely contingent training challenge. A further structural limitation is the phenomenon of hallucination, whereby neural networks generate outputs that are syntactically fluent yet factually unfounded, reflecting epistemic and architectural features of probabilistic modeling rather than failures of legal oversight. [22] Finally, limits of algorithmic efficiency impose hard boundaries[23] on what artificial intelligence can achieve, as certain classes of problems remain mathematically intractable for existing architectures, underscoring the non-negotiable constraints of computational logic.

Without a clear understanding of both internal and external limitations, it is impossible to develop a coherent account of what artificial intelligence can and cannot accomplish in legal reasoning. Within these boundaries, however, AI systems are capable of analyzing vast bodies of legal texts, identifying structural principles and tensions, comparing legal systems across historical and geographical contexts, and synthesizing jurisprudential theories advanced by thinkers such as H. L. A. Hart, Ronald Dworkin, Hans Kelsen, and John Rawls. In this

[21] Ayham Wael and Amer Madi, "Accelerating Artificial Intelligence: The Role of GPUs in Deep Learning and Computational Advancements," *East Journal of Engineering* 1, no. 1 (2025): 31, 34–35; William J. Dally et al., "Evolution of the Graphics Processing Unit (GPU)," *IEEE Micro* 41, no. 6 (2021): 42.

[22] Muhammad Usman Hadi et al., "Large Language Models: A Comprehensive Survey of Its Applications, Challenges, Limitations, and Future Prospects," *Authorea Preprints* 1, no. 3 (2023): 1, 2.

[23] Danny Hernandez and Tom B. Brown, "Measuring the Algorithmic Efficiency of Neural Networks," *arXiv Preprint arXiv:2005.04305*, 2020, 3.

epistemic sense, artificial intelligence offers a powerful methodological tool for reflecting on legal systems at a higher level of abstraction and may contribute to the systematic development of a general theory of law—without itself supplying the normative foundations such a theory ultimately requires.

A. Natural Law Principles as Constraints on AI Regulation

Natural Law theorists argue that reducing a human being to a data point or a profile for a predictive algorithm violates the principle that humans should be treated as ends in themselves, never merely as means. Natural law theory argues that laws should reflect universal moral principles, not just technical compliance or positivist rules. Applied to AI, this means legal frameworks must ensure respect for human rights, dignity, fairness, and justice, preventing dehumanization in automated decisions. Unlike legal positivism, which focuses on enacted rules, natural law demands that AI regulations be judged against higher ethical standards to avoid unjust outcomes. It offers a lens for addressing issues like deepfakes, misinformation, and biased algorithms by asking whether they serve justice and the common good. Its universality also supports harmonizing global AI regulations to prevent exploitation of legal gaps across jurisdictions.

Artificial intelligence can be trained on different legal systems and has the ability to detect common and different aspects of these systems. Natural Language Processing (NLP) is a field of AI that gives computers the ability to understand, interpret, and generate human language (text and speech). Since law is fundamentally text-based, NLP is arguably the most critical AI component in legal tech.[24] But when AI learns from existing legal texts and decisions, which may contain systemic

[24] Miss. Aliya Anam Shoukat Ali, "AI-Natural Language Processing (NLP)," *International Journal for Research in Applied Science and Engineering Technology* 9, no. VIII (2021): 135, https://doi.org/10.22214/ijraset.2021.37293.

biases (racial, gender, class), may lead to misconceptions. However, these developments in artificial intelligence have the potential to solve these kind of problems as well. In order for artificial intelligence to create a sound general legal thought, all country laws and court decisions must be converted into data sets and transferred to the digital environment. In order for the law of each country to be considered as law, it must be based on a certain legal logic. A system without logic can be described as law, but it cannot be described as a legal system. Logicality is essential for law-related AI algorithms too. An AI algorithm cannot be created without consistent rules and principles.[25]

Adapting Dworkin's views on legal principles (legal integrity) to artificial intelligence algorithms would make a significant contribution to legal consistency. Because consistency is one of the key features of general legal thought, there is a close relationship between integrity and general legal thought.

It is claimed that in order for artificial intelligence to have the potential to create legal theory, it must have the ability to think originally. This topic is related to the debates between free will and determinism in philosophy, and fate and coercion in theology. According to the coercive and deterministic view, there is little difference between human intelligence and artificial intelligence in terms of freedom. This difference arises only when free will is accepted. Generally, AI is not considered an alternative to human intelligence, but rather an auxiliary tool that embodies and imitates it. Consequently, AI legal algorithms rely on data derived from positive law and leverage advanced computational techniques to analyze and interpret legal information. The data from positive law are not merely factual inputs; they also encompass the rules and principles that define

[25] Daniel Oliveira Cajueiro and Victor Rafael Rezende Celestino, "A Comprehensive Review of Artificial Intelligence Regulation: Weighing Ethical Principles and Innovation," *Journal of Economy and Technology* 4 (2026): 86, 87, https://doi.org/10.1016/j.ject.2025.07.001.

legal systems. Artificial intelligence has the potential to assist in uncovering and validating these legal principles on a broader scale. The intersection of AI and legal theory is a major development in modern jurisprudence. As AI advances, its role in law has grown from basic document handling to shaping legal frameworks and reasoning systems. AI enables large-scale empirical testing of legal theories, moving beyond traditional doctrinal analysis with integration of computer science methods with legal scholarship is creating new hybrid methodologies 17. One of the general principles of law is transparency and explainability. However, because the algorithms are protected by copyright and the decision processes are complex and sometimes work in a black box, the reliability of the results is weakened. This is particularly true for "deep learning" systems that use "neural networks," which are intended to replicate neural processes in the human brain[26]. While rapid developments in the field of artificial intelligence strengthen the thesis of a general legal thought, there is a need for open and explainable artificial intelligence studies that can synthesize law with technology specific to legal science in order to eliminate the opacity in algorithms and the uncertainty in processes[27]. Although it does not seem possible to overcome the difficulties caused by different thoughts and practices in the field of law and different languages with human power, it seems that artificial intelligence can be equipped with features that can make significant contributions to the solution of some of these problems.

The formalization of law for artificial intelligence systems is stratified. Codified laws and procedural rules, being stable and rule-based, are more amenable to computational encoding. Conversely, the modeling of variable legal values, such as

[26] Ashley Deeks, "The Judicial Demand for Explainable Artificial Intelligence," *Columbia Law Review* 119, no. 7 (2019): 1829–32.

[27] Deeks, "The Judicial Demand for Explainable Artificial Intelligence," 1829–30.

judicial discretion, contextual interpretations, and evolving case law, presents significant challenges due to their dependence on human judgment and dynamic nature.

B. Codification and Compliance: Positive Law Approaches to AI Regulation

Legal rules are traditionally understood as mechanisms for constraining discretion and preventing arbitrariness and abuses of power. Yet the language through which law operates is inherently ambiguous and context-sensitive, creating limits to rule determinacy. Canonical examples—such as the judicial classification of bees as "fish" for the purposes of environmental protection—illustrate how legal meaning may diverge from ordinary linguistic usage in response to normative and institutional aims. It was precisely this phenomenon that H. L. A. Hart sought to capture through his concept of the "open texture" of language. Hart argued that no system of rules, however carefully drafted, can anticipate all possible future cases, leaving adjudicators with zones of discretion in which the application of legal norms requires judgment rather than mechanical deduction[28].

The regulatory landscape for artificial intelligence necessitates a shift away from "pure legal theory" and rigid positivist hierarchies, which lack the flexibility to address rapid technological evolution and the inextricable link between law and morality. While soft positivism offers a more adaptable framework[29], it requires a rigorous integration of conventional morality and human rights into the legal system to effectively mitigate the risks posed by algorithmic governance. Although

[28] Nicholas A. Caputo, "Rules, Cases, and Reasoning: Positivist Legal Theory as a Framework for Pluralistic AI Alignment," *arXiv Preprint arXiv:2410.17271*, 2024, 1–4.

[29] Gregory Shaffer and Mark A. Pollack, "Hard and Soft Law," *International Law and International Relations: Insights from Interdisciplinary Scholarship, New York*, 2012, 2.

the EU AI Act makes significant strides by anchoring its provisions in fundamental freedoms and moral principles, its practical efficacy remains contingent upon clarifying abstract transparency obligations and reconciling the status of training and output data with existing frameworks like the GDPR. Ultimately, by prioritizing a value-laden approach that enshrines ethical accountability and human dignity, the legal system can establish a resilient normative foundation capable of governing AI's ongoing trajectory.[30]

The most fundamental problem in terms of positive law is that there are millions of different court decisions and practices, and very different branches of law, and very different and even conflicting legal regulations related to these branches. Big data analyzing power of AI, enables to compare millions of laws, rulings, and precedents across diverse legal systems. Pattern recognition algorithms help to uncover normative rules like justice, equality and consistency between different systems. Natural Language Processing (NLP) techniques enable AI to compare, analyze and interpret legal texts in different languages. Although these systems are developing, their success in deciphering texts is not yet sufficient for legal clarity and certainty[31]. Studies in this field are continuing to solve NLP-related problems in the field of law and certain successes are being achieved[32].

[30] "Legal Regulation of AI and Morality in the Context of Natural Law and Legal Positivism -- *Arturas Grumulaitis*
 Vilnius University," Comete Ethical AI Workshop, accessed December 31, 2025, https://lix.polytechnique.fr/ethicalai/presentations/arturas-grumulaitis/.

[31] R. Anitha and KS Anil Kumar, "Sentiment Analysis In Low Resource Language: Exploring Bert, Mbert, Xlm-R, And Rnn Architectures To Underpin The Deep Language Understanding," *Journal of Nonlinear Analysis and Optimization* 15, no. 2 (2024): 181.

[32] Farnaz Zeidi, "Improving the Performance of NLP Tasks in Legal Tech" (PhD diss., İstanbul Üniversitesi, 2024), 77.

C. Integrative Jurisprudence and AI Governance: Toward Adaptive Legal Systems

The term 'integrative jurisprudence' was first introduced by Jerome Hall in 1964. However, the idea of a comprehensive, pluralistic view of law dates back to the late 19th century in Ukrainian and Russian legal thought, with early conceptualizations by B.A. Kistyakovsky and A.S. Yashchenko. Western scholars like Hall and J. Berman also advocated for synthesizing major legal theories—natural law, legal positivism, and sociological or historical approaches. Contemporary integrative legal theories continue along similar lines[33]. Although Ibn Khaldun's theory of natural state[34] and integrative law theory emerged in different contexts, they share a conceptual similarity in terms of the importance they attach to human nature and social integrity. Integrative Lawyers tend to bring their whole selves (body, mind, soul, and emotions) to work together to create a better legal system. Ethical governance of Artificial Intelligence systems begins with ethical design and development, which encourages developers to embed human-centered values, transparency, fairness, and accountability into the systems. This ethical framework requires relational governance, utilizing dialogue-based frameworks among stakeholders (developers, users, and regulators) that move beyond punitive regulation, and fostering multi-disciplinary collaboration involving lawyers, ethicists, and affected communities. In cases of harm caused by AI systems (such as bias), restorative accountability should be prioritized, focusing on repairing relationships and systemic reforms rather than assigning blame. Finally, since AI challenges traditional legal concepts like authorship, liability, and intent, adaptive legal

[33] Mehman A. Damirli, "Integrative Jurisprudence from Fuzzy Logic Perspective," *International Conference on Theory and Applications of Fuzzy Systems and Soft Computing*, 2020, 181–82.

[34] Fuad Baali, *Society, State, and Urbanism: Ibn Khaldun's Sociological Thought* (Suny Press, 1988), 28–30.

frameworks that evolve alongside these new technologies are needed.

Integrative jurisprudence, which aims for coherence across diverse legal branches and practices, can be significantly advanced by artificial intelligence. By leveraging computational methods to synthesize and analyze extensive legal datasets, including millions of legal texts, cases, and statutes, AI can identify patterns and contradictions across jurisdictions. This capability enables legal professionals to navigate complex, interdisciplinary landscapes and gain a more holistic understanding of the law, thereby supporting the foundational principles of legal integration[35].

Algorithms face significant challenges when applied to legal contexts due to the inherent complexity and variability of legal systems. One major obstacle is the difficulty in interpreting ambiguous legal language, where terms like "reasonable" or "intent" require nuanced human judgment[36]. Additionally, legal documents often exist in unstructured formats, complicating algorithmic parsing and analysis. Ethical risks also arise, as biased data can lead to unjust outcomes in areas such as sentencing, bail decisions, and predictive policing. The diversity of laws across jurisdictions further demands adaptable algorithmic systems capable of accommodating local legal frameworks. These challenges underscore the importance of addressing concerns related to bias, exceptions, privacy, and the necessity of human oversight in the deployment of legal algorithms. AGI can ensure interdisciplinary alignment based on human-centered values, ensuring that justice, empathy, and relational thinking are part of legal modeling.

[35] NexLaw | Your AI Legal Assistant, "NexLaw Blog | AI in Legal."

[36] Vincent Chiao, "Algorithmic Decision-Making, Statistical Evidence and the Rule of Law," *Episteme* 21, no. 4 (2024): 1243–50, https://doi.org/10.1017/epi.2023.27.

II. ARTIFICIAL INTELLIGENCE AND THE REFINEMENT OF LEGAL NORMS: TOWARD GENERAL LEGAL THOUGHT

AI alignment faces two persistent challenges—value pluralism and specification—which legal theory is well positioned to illuminate. Legal systems have long confronted the problem of formulating general rules that can be predictably applied to particular cases without suppressing diverse conceptions of the good. Prominent legal theories explain this capacity by emphasizing the role of concrete cases in progressively specifying the meaning of abstract norms, enabling agreement on outcomes despite persistent disagreement on underlying values. Over time, the semantic scope of legal terms is refined through their application in practical contexts, allowing coordinated implementation without full normative consensus. These jurisprudential insights can supplement existing approaches to democratic AI alignment, including methods that employ large language models to generate illustrative cases. Further empirical evaluation is required, but sustained collaboration between legal theory and AI research offers a promising path toward aligning artificial intelligence with plural human values[37] beside some limitations.

The limits of artificial intelligence can be considered from two perspectives. First, in terms of technological and second, legal and ethical. While former is not absolute, due to the constant evolution of technology, AI software is limited by the limitations of its databases and the flexibility of its algorithms. Legal limitations, however, are determined by the limitations imposed by national and international laws. The variation in national legal regulations has naturally brought the issue of legal subjectivity back to the forefront, and as a result, has brought up discussions about the possibility of developing a general legal thought and the potential for artificial intelligence to synchronize

[37] Caputo, "Rules, Cases, and Reasoning: Positivist Legal Theory as a Framework for Pluralistic AI Alignment," 4.

these legal variations and contribute to the development of an integrative understanding of law. One of the aims of this study is to clarify this issue.

A. Technological Limitations

One of the major technological limitations is the inadequacy of the database. Another important problem is that the data in the databases contains inaccurate or biased information[38]. Therefore, ensuring data privacy and security in cloud-based AI systems is increasingly challenging, especially under regulations like the CCPA (California Consumer Privacy) and GDPR (General Data Protection Regulation). Distributed training and real-time inference often involve data transfers that risk exposure. Techniques such as differential privacy and federated learning help mitigate these risks by allowing models to train on local data without sharing it[39]. Therefore, the outputs of artificial intelligence must undergo human control. Because inconsistencies and deficiencies in the laws and court decisions that make up the data set will naturally negatively affect the performance of artificial intelligence. This problem requires legal expertise to recognize and address AI-related issues.

Another problem affecting the legal interpretation and reliability regarding artificial intelligence is the problem of interpretability, explainability and intelligibility[40]. Since this issue is a serious problem, especially in the field of law, efforts

[38] Daniel A. McFarland and H. Richard McFarland, "Big Data and the Danger of Being Precisely Inaccurate," *Big Data & Society* 2, no. 2 (2015): 46-47, https://doi.org/10.1177/2053951715602495; Amihai Motro, "Imprecision and Uncertainty in Database Systems," *Fuzziness in Database Management Systems* 5 (1995): 3, 4; Ilaria Tiddi et al., "Quantifying the Bias in Data Links," *International Conference on Knowledge Engineering and Knowledge Management*, 2014, 531- 32.

[39] H. Kröger et al., "Influence of a New Virostatic Compound on the Induction of Enzymes in Rat Liver," *Arzneimittel-Forschung* 25, no. 9 (1975): 15.

[40] Ričards Marcinkevičs and Julia E. Vogt, "Interpretability and Explainability: A Machine Learning Zoo Mini-Tour," *arXiv Preprint arXiv:2012.01805*, 2020, 1, 2.

are being made to develop algorithms that are transparent and explainable and in line with the purposes and principles of law. So AI doesn't grow on its own—it needs a strong, flexible, and secure foundation[41]. Large AI models contain billions of parameters, and the requirement of powerful GPU/TPU infrastructures for training these models poses a separate problem in the technological field.[42] Large data sets must be stored and transferred quickly and securely. Large data sets must be stored and transferred quickly and securely. High-speed storage solutions such as SSD/NVMe are also required[43]. In short, technologically speaking, artificial intelligence is limited by the limits of hardware and software. In addition to the differentiation of legal systems, language differences and the success of artificial intelligence in translating these languages are also important in terms of general legal thought.

B. Legal and Ethical Limitations and Restrictions Regarding Artificial Intelligence

While artificial intelligence systems can technically operate without explicit ethical or legal frameworks, legal logic dictates that their responsible use requires adherence to principles and guidelines to ensure transparency, accountability, and human oversight. As artificial intelligence pushes the boundaries of the legal field, law has also entered the process of defining the limits of artificial intelligence. As a result, several new legal

[41] Amit Jha, "Neurons Need Networks: Infrastructureat the Core of AI Development," July 2025.

[42] Guangji Bai et al., "Beyond Efficiency: A Systematic Survey of Resource-Efficient Large Language Models," *arXiv Preprint arXiv:2401.00625*, 2024, 2-3, 9.

[43] Charles Jaranilla et al., "Tiered Storage in Modern Key-Value Stores: Performance, Storage-Efficiency, and Cost-Efficiency Considerations," *2024 IEEE International Conference on Big Data and Smart Computing (BigComp)*, February 18, 2024, 151–58, https://doi.org/10.1109/BigComp60711.2024.00032.

regulations, both national and international, have emerged[44]. These legal regulations have naturally made it a legal obligation to consider certain common principles and guidelines regarding the production and use of artificial intelligence. Ethical principles such as transparency, non-discrimination, responsibility and accountability, security, and privacy have begun to form the legal framework[45].

Given the profound societal implications of these technologies, the governance of AI ethics cannot be confined solely to technical experts; rather, it necessitates an interdisciplinary approach involving lawyers, social scientists, philosophers, policymakers, and broader society. The ethical dimensions of artificial intelligence through three principal frameworks: data ethics, algorithmic ethics, and application ethics.[46] In this context, the rapid integration of AI into economic life renders ethical regulation not optional but imperative. Issues such as algorithmic fairness, data governance, market manipulation, and accountability in automated decision-making systems highlight the necessity of establishing robust ethical and legal frameworks.[47]

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[44] M. Ducret et al., "Trustworthy Artificial Intelligence in Dentistry: Learnings from the EU AI Act," *Journal of Dental Research* 103, no. 11 (2024): 1051–56, https://doi.org/10.1177/00220345241271160.

[45] Lilian Edwards, "The EU AI Act: A Summary of Its Significance and Scope," *Artificial Intelligence (the EU AI Act)* 1 (2021): 4, 5; David Hess, "The Transparency Trap: Non-Financial Disclosure and the Responsibility of Business to Respect Human Rights," *American Business Law Journal* 56, no. 1 (2019): 2, https://doi.org/10.1111/ablj.12134.

[46] Gökben Bayramoğlu, "Artificial Intelligence from an Ethical Perspective," in *Futurisks: Risk Management in the Digital Age* (Springer, 2025), 143.

[47] Halis Kiral and Gökhan Yılmaz, "The Impact of Emerging Technologies and the Future of Risk Management: A Strategic Perspective," *Futurisks: Risk Management in the Digital Age*, 2025, 6–7; Çetin Karahan et al., "Unveiling the Shadows: Anticipating Future Cyber Risks and Their Impacts on Businesses," in *Futurisks: Risk Management in the Digital Age* (Springer, 2025), 27–28.

Globally, legal and ethical regulations concerning AI exhibit a fragmented structure, ranging from rights-based strict laws (hard law) to innovation-oriented flexible approaches (soft law).[48] In the United States, there is no comprehensive federal statute governing artificial intelligence; instead, a strategy grounded in the philosophy of 'Innovation First' is being pursued, reflecting an innovation-prioritized and sectoral approach.[49] Recent developments in the United States highlight the increasing importance of responsible AI use, with federal agencies such as the SEC, FTC, and FCC issuing rules and guidance to promote ethical and transparent deployment. Alongside these efforts, professional bodies have begun establishing standards, notably the American Bar Association's 2024 ethics opinion on generative AI, which emphasizes competence, confidentiality, informed consent, and oversight. Together, these initiatives reflect a growing recognition of AI's opportunities and risks, as well as an emerging consensus on the need for normative frameworks to guide its responsible use in law and beyond.[50] Ethical concerns remain a central challenge in AI development for both businesses and regulators. In China, authorities introduced ethics review requirements in 2023 for AI and related R&D in sensitive fields, followed by draft measures in 2025 specifically addressing AI ethics. These rules apply broadly to activities affecting health, safety, reputation, the environment, and public order, requiring adherence to principles such as fairness, accountability, and respect for human

[48] "EU AI Act - Updates, Compliance, Training," accessed March 20, 2026, https://www.artificial-intelligence-act.com/.

[49] Insights February 5 and 2026, "2026 AI Laws Update: Key Regulations and Practical Guidance," Gunderson Dettmer - 2026 AI Laws Update: Key Regulations and Practical Guidance, accessed March 21, 2026, https://www.gunder.com/en/news-insights/insights/2026-ai-laws-update-key-regulations-and-practical-guidance.

[50] Chinmayi Sharma and Alan Rozenshtein, "Regulatory Approaches to AI Liability," *Lawfare*, September 24, 2024, https://www.lawfaremedia.org/article/regulatory-approaches-to-ai-liability.

dignity. AI projects within scope must undergo internal or external ethics review before deployment, while regulators continue to develop a list of high-risk AI activities, urging businesses to closely monitor ongoing regulatory changes.[51] The EU has established a rigid, rights-based hierarchy through the EU AI Act, which categorizes systems by risk.[52]

UNESCO and the G7 play a pivotal role in shaping global AI governance through complementary normative frameworks. UNESCO's Recommendation on the Ethics of Artificial Intelligence, endorsed by all 194 member states, establishes a comprehensive set of principles and explicitly mandates the conduct of Ethical Impact Assessments prior to the deployment of AI systems. In parallel, the G7 Hiroshima Artificial Intelligence Process has emerged as a key initiative aimed at developing international standards and codes of conduct. Its primary objective is to foster interoperability across jurisdictions despite differing national values, thereby facilitating a coherent and coordinated approach to responsible AI governance at the global level.[53] This is the first global standard-setting instrument on AI ethics, it strongly dictates that new technologies must be used to defend and exercise human rights rather than infringe upon them. However, the document deliberately avoids establishing a single, static definition of AI to accommodate technological evolution, which somewhat diminishes its strict

[51] Barbara Li, "Global AI Governance Law and Policy: China | IAPP," IAPP.Org, November 12, 2025, https://iapp.org/resources/article/global-ai-governance-china.

[52] Liam J. Row, "Ethical & Effective Federal Artificial Intelligence Policy" (Honors Thesis, University of Dayton, 2025), 105, https://ecommons.udayton.edu/uhp_theses/486.

[53] Hiroki Habuka, *Japan's Agile AI Governance in Action: Fostering a Global Nexus Through Pluralistic Interoperability*, September 10, 2025, https://www.csis.org/analysis/japans-agile-ai-governance-action-fostering-global-nexus-through-pluralistic.

legal applicability as a reference point for future hard law.[54] The OECD's 2019 AI Principles articulate a vision of human-centric and trustworthy AI grounded in democratic values, with implementation monitored through soft peer review and supported by guidance on societal impacts, particularly in the public sector and labor markets. This framework also underpins the Global Partnership on AI (GPAI), a multistakeholder initiative that promotes international cooperation in responsible AI development. Together, these mechanisms illustrate how soft law and peer review contribute to transnational AI governance, offering a flexible yet normatively grounded alternative to binding regulation.[55]

Global AI governance reflects diverse regulatory philosophies and normative priorities across jurisdictions. The European Union adopts a comprehensive, risk-based approach through the AI Act, while the United States emphasizes a flexible, market-oriented and sectoral strategy. China pursues a state-centered, security-focused model grounded in binding regulations, whereas Japan relies on ethics-based, consensus-driven soft law frameworks. At the international level, initiatives such as UNESCO's AI Ethics Recommendation and the G7 Hiroshima AI Process aim to establish shared standards and promote interoperability despite differing national values. Collectively, these approaches highlight the fragmented yet evolving nature of global AI governance.

These regulatory developments ultimately seek to preserve the foundational values and functions of law. Because AI systems can process vast bodies of legal texts and practices, they hold the potential to support a more integrative and

[54] José-Miguel Bello y Villarino, "Global Standard-Setting for Artificial Intelligence: Para-Regulating International Law for AI?," *The Australian Year Book of International Law* 41 (2023): 164, https://doi.org/10.1163/26660229-04101018.

[55] Bello y Villarino, "Global Standard-Setting for Artificial Intelligence: Para-Regulating International Law for AI?," 164–65.

comprehensive understanding of law in the future. After the public release of ChatGPT in November 2022, generative AI tools rapidly entered major legal research platforms such as Lexis and Westlaw. These tools employ large language models trained on extensive datasets to generate human-like text. Their integration into legal research methodologies necessitates the parallel development of advanced human cognitive capacities—including critical thinking, analytical reasoning, and strategic judgment—to ensure accurate, ethical, and contextually appropriate legal analysis[56]. As courts adjudicate disputes involving algorithmic decision-making and apply existing doctrines to predictive AI systems, they will contribute to shaping a "common law of explainable AI" tailored to diverse audiences (judges, juries, litigants) and distinct legal contexts.

CONCLUSION

This study has advanced the central thesis that Artificial Intelligence—particularly in its advanced and potentially general forms—can function as a methodological bridge for the reconstruction of general legal thought, without itself constituting a source of normativity. Rather than proposing artificial intelligence as a replacement for human legal reasoning or moral judgment, the article has argued that AI should be understood as an analytical and synthetic instrument capable of addressing long-standing structural problems in general legal theory.

The primary difficulty confronting general legal thought has historically been the fragmentation of law across jurisdictions, languages, legal traditions, and institutional practices. This fragmentation has raised persistent doubts about whether a genuinely general theory of law—one capable of transcending

[56] Stephanie L. Grace, "Finding Equilibrium: An Integrative Approach to Balancing Human and Artificial Intelligence in Legal Research," *Legal Reference Services Quarterly*, August 7, 2025, 2, https://doi.org/10.1080/0270319X.2025.2534229.

cultural and historical contingencies—is possible at all. The analysis presented here demonstrates that contemporary artificial intelligence technologies, through large-scale pattern recognition, comparative text analysis, and multilingual natural language processing, offer unprecedented tools for identifying trans-jurisdictional regularities in legal systems. In this limited but significant sense, artificial intelligence contributes to general legal thought by enabling a level of abstraction and comparison that exceeds ordinary human cognitive capacities.

At the same time, the study has emphasized that artificial intelligence cannot generate or justify the normative foundations of law. Normativity remains irreducibly human. To address this limitation, the article proposed a tripartite conceptual framework in which artificial intelligence operates within, rather than above, established legal traditions. In this framework, positive law supplies the structured data necessary for algorithmic analysis; natural law provides the universal moral constraints that prevent the instrumentalization of human beings; and integrative law, understood not as a theory but as a methodology, contributes a human-centered and relational orientation that resists full computational formalization. Artificial intelligence, accordingly, does not replace these traditions but mediates their interaction.

A key theoretical contribution of this study lies in its clarification of the status of integrative law. Contrary to approaches that treat integrative jurisprudence as a competing legal theory, this research has argued that it functions more coherently as a methodological orientation—one that emphasizes interdisciplinarity, ethical sensitivity, and practical coherence. This distinction is crucial for artificial intelligence applications, as it explains why certain dimensions of legal reasoning—such as empathy, contextual judgment, and restorative practices—remain resistant to algorithmic encoding, even under hypothetical conditions of artificial general intelligence.

The study has also underscored the structural limits of artificial intelligence within legal reasoning. Technological constraints, including data bias, interpretability deficits, computational resource dependence, and hallucination phenomena, impose non-trivial boundaries on the reliability of AI-generated legal outputs. Equally significant are legal and ethical constraints arising from transparency requirements, accountability norms, and the necessity of human oversight. These limitations are not accidental shortcomings but reflect the deeper fact that law is a normative institution grounded in human agency, responsibility, and moral evaluation.

Despite these constraints, the article maintains that artificial intelligence can play a constructive methodological role in refining legal concepts, testing the coherence of legal principles across systems, and supporting comparative jurisprudence. In this respect, AI strengthens rather than undermines the scientific aspirations of general legal thought by enhancing its analytical rigor and empirical reach, while leaving normative authority firmly in human hands.

The broader implication of this study is that the future of general legal thought will depend on interdisciplinary integration. Legal education, legal theory, and legal institutions must adapt by incorporating AI literacy, ethical reasoning, and computational logic into their frameworks, while simultaneously safeguarding the humanistic foundations of law. Artificial intelligence, when properly constrained and guided, can assist jurists in articulating more coherent, systematic, and globally informed accounts of law—yet it cannot determine what law ought to be.

In conclusion, this research affirms that artificial intelligence is neither a threat to general legal thought nor its solution, but a powerful methodological catalyst. Its value lies in its capacity to expose patterns, tensions, and possibilities within the legal domain, thereby enabling legal scholars to rethink the structure of law at a general level. The task of grounding law in justice,

dignity, and moral responsibility, however, remains an inescapably human endeavor.

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